

Fenpropathrin

Toxicity Data Summary

Hyalella azteca

Picard CR. 2010e. 10-Day toxicity test exposing freshwater amphipods (*Hyalella azteca*) to fenpropathrin applied to formulated sediment under static-renewal conditions. Springborn Smithers Laboratories Study No. 13656.6137, Wareham, MA. Submitted to pyrethroid working group. DPR record number 254438.

| | Picard 2010 | <i>H. azteca</i> |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------|-------------------------|
| Parameter | Value | Comment |
| Test method cited | Springborn Smithers Laboratories Protocol No.: 100808/OPPTS/10-day <i>Hyalella</i> /artificial sediment. | USEPA |
| Phylum | Not stated | |
| Class | Not stated | |
| Order | Not stated | |
| Family | Not stated | |
| Genus | <i>Hyalella</i> | |
| Species | <i>azteca</i> | |
| Family in North America? | yes | |
| Age/size at start of test/growth phase | 7 days old | |
| Source of organisms | Springborn Smithers lab culture | |
| Have organisms been exposed to contaminants? | No | |
| Animals acclimated and disease-free? | Yes | |
| Animals randomized? | Yes | |
| Test vessels randomized? | Not stated | |
| Test duration | 10 day | |
| Data for multiple times? | No | 10 day only |
| Effect 1 | Mortality | |
| Control response 1 | 99% neg control/99% solvent control survival | Pooled control |
| Effect 2 | Growth | |
| Control response 2 | 0.15 mg neg control/0.14 mg solvent control survival | Pooled control |
| Effect 3 | Not stated | |
| Control response 3 | Not stated | |
| Temperature | 22 to 25 °C | |
| Test type | Static renewal | |
| Photoperiod/light intensity | 16 h/8 h dark; 510-1000 lux | |
| Dilution water (overlying water) | Well water | |
| pH | 6.4 to 7.0 | |
| Hardness | 64-76 mg/L | |
| Alkalinity | 20-22 mg/L | |
| Conductivity | 410-560 µmhos/cm | |

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|-------------------------------------------------------------------------|------------------------------|------------------------------------------------|
| Parameter | Value | Comment |
| Dissolved Oxygen | 3.4 – 8.4 mg/L | |
| TOC/DOC | 0.49 to 0.54 mg/L/Not stated | Dec-Jan 2009 |
| Ammonia-N | <0.01 – 0.29 mg/L | |
| Chemical analysis?/ Method | No | |
| Sediment formulated? | Yes | Method: OECD 218 |
| Organic carbon | 2.3% | |
| Particle size distribution (sand, silt, clay) | 80%, 3%, 17% | |
| pH | 7.1 | |
| Percent solids | 68.62% | |
| Sediment spike procedure | Jar rolling technique | 4 h @ RT; 15 rpm |
| Sediment spike equilibration time | 12 d @ 2-8°C | Mixed 2x/week for 2 h @ RT |
| Sediment to Solution ratio | 100:175 mL | 100 mL sediment = 153 g wet wt or 105 g dry wt |
| Pore Water monitored? | Yes | Results in supplemental report; not referenced |
| Pore water extraction method | Centrifugation | 1200 <i>g</i> 15-30 min |
| Pore water chemical extraction | SPME | |
| Pore water chemical analysis | Not stated | |
| pH | 6.8-7.0 | |
| TOC | 110-160 mg C/L | |
| DOC | 89-120 mg C/L | |
| Ammonia-N | 1.5-2.1 mg/L | |
| Redox | 160-190 mV | |
| Feeding | 1 mL of YCT daily | Per replicate vessel |
| Purity of test substance | 100% | |
| Concentrations measured? | Yes | |
| Measured is what % of nominal? | 77-96% in sediment spikes | 83-98% in stock solutions |
| Toxicity values calculated based on nominal or measured concentrations? | Measured | |
| Chemical method documented? | Yes | Ext/cleanup and instrument analysis |
| Concentration of carrier (if any) in test solutions | 0% | 10 mL of acetone evaporated from sand |
| Concentration 1 Nom/Meas (µg/kg) | 2.0/1.7 | 8 Reps and 10 per |
| Concentration 2 Nom/Meas (µg/kg) | 4.0/3.4 | 8 Reps and 10 per |
| Concentration 3 Nom/Meas (µg/kg) | 8.0/6.6 | 8 Reps and 10 per |
| Concentration 4 Nom/Meas (µg/kg) | 16/13 | 8 Reps and 10 per |
| Concentration 5 Nom/Meas (µg/kg) | 32/27 | 8 Reps and 10 per |
| Concentration 6 Nom/Meas (µg/kg) | 64/52 | 8 Reps and 10 per |

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|--------------------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Parameter | Value | Comment |
| Control | Solvent and negative controls | 8 Reps and 10 per |
| LC50 (µg/kg) | 10 (9.3-12)95%CI | Method: Spontaneous Probit analysis using TOXSTAT |
| EC50 (µg/kg) | 8.5 (7.7 – 9.4) 95% CI | Method: Linear interpretation method; |
| NOEC(µg/kg) | Survival: 3.4 Growth: 3.4 | Method: Survival and growth- Wilcoxon's Rank Sum Test with Bonferroni Adjustment with TOXSTAT; p: 0.05 MSD: |
| LOEC(µg/kg) | Survival: 6.6 Growth: > 3.4 | Same as above |
| MATC (GeoMean NOEC,LOEC) | Survival: 4.7; growth: NA | |
| % of control at NOEC | (95%/99%=96%); (0.12/0.14=86%) | Pooled controls |
| % of control at LOEC | (89%/99%=90%) | Pooled controls |

Notes:

Protocol adapted from: USEPA, 2000. Methods for measuring the toxicity and bioaccumulation of sediment-associated contaminants with freshwater invertebrates. Protocol fulfills requirement of USEPA OPPTS 850.1735 Whole sediment acute toxicity invertebrates, freshwater (USEPA, 1996).

Although the study states pore water results are in a supplemental report, the data was never made available due to analytical and sample holding time issues.